

ELECTROMECHANICALLY-ASSISTED REGULATOR CONTROL ASSEMBLY

Abstract:

An electromechanically-assisted control system for use in a second-stage regulator. Regulator control assembly (20), also referred to as EMA assembly (20), includes a mechanical actuator sub-assembly (21) and an electromechanical actuator (EMA) sub-assembly (22) for controlling airflow through single air supply line (23). EMA sub-assembly (22) includes electronically controllable actuator (ECA) (34), which removably seals EMA orifice (36) in wall (30) of pilot chamber (32). ECA (34) is electrically connected with and controlled by control electronics (38). The control electronics include programmable microprocessor (40), which is electrically connected with charge and discharge electronics (42), both of which are electrically connected with power supply (44). Alternatively, regulator control assembly (20'), also referred to as all-electronic (AE) assembly (20'), has only an EMA sub-assembly and no mechanical actuator sub-assembly. AE assembly (20') does not include a low-pressure diaphragm, a lever arm, a first valve, or a pilot jet orifice.

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